
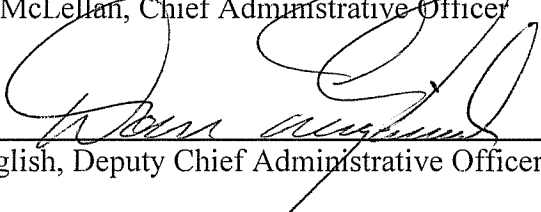


**Halifax Regional Council
Committee of the Whole
April 6, 2004**

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:


George McLellan, Chief Administrative Officer


Dan English, Deputy Chief Administrative Officer

DATE: March 29, 2004

SUBJECT: Findings: Weekly Summer Collection Green Cart Pilot Project

ORIGIN

At the May 6, 2003 Regional Council meeting, the withdrawal of \$80,000 from the Service Improvement Reserve was approved for the completion of a weekly summer collection green cart pilot project. The approval of funds for the pilot project followed discussions during the 2003-04 Budget Process.

RECOMMENDATION

It is recommended that:

Based upon the marginal benefits quantified during the eight-week, weekly summer collection green cart pilot project, that the current service level of biweekly green cart collection, continue for future summers.

BACKGROUND

The provision of a weekly summer green cart pilot project, at approximately 15,500 homes with a biweekly control area of 6,000 homes, was conducted during an eight-week period between July and August in the urban core of HRM. The purpose of the pilot project was to provide a cost-effective method of empirically evaluating the impact of weekly summer green cart collection on the organics program participation and customer satisfaction. To ensure the evaluation was conducted without bias, LURA Consulting and SNC Lavalin were engaged for the design and evaluation of the project. The results of the pilot project assisted HRM in determining if a recurring investment in weekly summer green cart collection throughout HRM is warranted.

1.0 Parameters of the Study

1.1 Timelines:

Eight weeks commencing Monday, July 7th and continuing to August 29th.

1.2 Location:

Tuesday and Thursday, collection area in Halifax; Thursday in Dartmouth; with Wednesday, Halifax as the control area.

1.3 Rationale for the Pilot Areas:

The three weekly pilot areas represent a typical mix of urban high density development in the downtown core, a primarily mature residential area, and a combination of established and new residential neighbourhoods. The pilot areas included many properties with very small front and side yards where, typically, higher number of nuisance complaints are reported.

1.4 Measurement:

a) Set-out Rate:

The frequency of green cart set-outs per household was measured.

b) Tonnage:

The weight of the organics collected in the weekly and biweekly control area was measured. Per household tonnage figure was calculated.

c) Customer Satisfaction:

A survey was conducted to determine customer satisfaction with the weekly collection, including if there was a reduction in cart-based nuisances, or if there was a perceived program convenience prompting more use of the green cart.

DISCUSSION

To raise awareness of the eight-week weekly green cart collection service (July 7, 2003 to August 29, 2003), a special weekly green cart collection schedule was distributed to approximately 15,500 homes in the study areas. Based upon the parameters stipulated above, all the data gathered during the eight-week pilot project (by route monitors who measured the set-out of green carts at the curb, the weight of the organics in the collection vehicles from the pilot and control area, and the door to door survey conducted at 385 homes) was tabulated and evaluated by LURA and SNC Lavalin.

Findings

1. **Set-Out Rate Frequency:**

Participation (i.e. placement of the green cart at the curb) per week in the weekly pilot area was 53% as opposed to 68.5% in the biweekly control area. In the pilot area over a two-week period, there was 57% higher number of green carts placed at the curb for collection. It is noted that 21% of residents surveyed were away one week while 14% of residents were away two weeks of the eight-week pilot project.

2. **Organic Material Collected:**

The amount of organics collected in the control area was 8.8 kg/household. This compares to 10.2 kg/hh in the pilot areas. Overall, the weight of organics collected was 15.9% higher in the areas which received weekly collection.

3. **Customer Satisfaction:**

3.1 *Reported Nuisances (% of people surveyed):*

<u>Type</u>	<u>Control</u>	<u>Pilot</u>
none	47.6%	55.4%
flies in cart	28.6%	23.6%
strong odours	25.7%	22.1%
fruit flies	23.8%	15.7%
maggots	15.2%	8.9%

3.2 *Collection Preference (% of people surveyed):*

	<u>Control</u>	<u>Pilot</u>
Biweekly	54.3%	27.9%
Weekly	45.7%	72.1%

3.3 *Willingness to pay for increased collection frequency (%of people surveyed):*

<u>Willingness</u>	<u>Control</u>	<u>Pilot</u>
Yes	42.9%	66.4%
No	54.3%	32.1%

Summary of Findings

- a) Weekly collection does not appear to increase overall participation in the organics collection program; however, those that participated now do so more frequently with weekly collection.
- b) The set-out rate frequency is 53% for weekly collection and 68.5% for biweekly collection.
- c) Weekly green cart collection was found to increase organic tonnage collected by 15.9% when compared to biweekly collection.
- d) Reports of fruit flies and maggots were lower in the weekly pilot areas, however, there was little difference regarding odours and flies in the green cart in the biweekly control area and the weekly pilot area.
- e) Residents are generally more satisfied with weekly green cart collection than biweekly collection.
- f) More residents in the pilot area were willing to pay an additional \$3.00 per year for increased summer green cart collection.

Analysis

Historical Performance of the Bi-Weekly Organic Green Cart Program:

Since the rollout of the 100,000 organic green carts across HRM in 1998, the number of residents reporting nuisances has decreased. HRM received reports of more residents experiencing nuisances in the summer of 1999, than in subsequent summer months. In response, an enhanced solid waste Communication and Education campaign was developed in 2001/2002. Although fewer nuisances were reported in the pilot areas, weekly green cart collection has not totally eliminated odour and flies nuisances. As residents become familiar with the use of the green carts, the number of nuisances reported has generally lessened.

A decrease in the number of residents experiencing nuisances since the summer of 1999 is consistent with the experience in other municipalities that have implemented a similar green cart program. SWRAC report dated March 7, 2001 reported 160 complaints for the months of July and August in 2000. For July and August, 2002, summer before the pilot program,

the call center (Hansen) logged 64 complaints and 39 complaints for the same period during the pilot program, 2003.

In the fall of 2001, HRM engaged Corporate Research and Associates to conduct a survey of residents measuring the overall satisfaction of Solid Waste Resources' services and collection programs. The results of the survey were as follows:

Satisfaction Rate:

Refuse Collection-	84%
Recycling Collection-	90%
Organics Collection-	81%
Household Hazardous Waste-	64% (a)
Information on Refuse services-	81%
Information on Recycling services-	87%
Information on Organics services-	79%
Information on Household Hzd services-	55% (a)

Note: (a) Since this survey, the Household Hazardous Waste program has been expanded with additional Saturdays the HHW depot is open, and residents can return left over latex and oil base paint to local Enviro Depots™.

The results of the survey in 2001 revealed that most residents of HRM are satisfied with the organics green cart program (and other SWR services). However, staff continues to seek to improve the overall satisfaction rate.

Cost Benefit Analysis

The benefit of weekly summer green cart collection (a higher level of service for residents) has financial implications for HRM. Staff's analysis has determined that the cost of weekly collection for the pilot project for three collection days (2 in Halifax, 1 in Dartmouth) is approximately \$246/tonne. This compares to \$ 80/tonnes for biweekly collection of organics during July and August, for all of HRM.

Based upon the 15.9% increase in organics collected during the eight-week pilot project, staff has calculated the additional increase of organics that would be received in Area 1 (Halifax), Area 2 (Dartmouth) and in the eight collection areas (all HRM) for a full five-day-week (Monday to Friday) service. A cost comparison of biweekly organics collection, and the cost if a five-day-week, weekly collection was provided in Areas 1 and 2 and in all of HRM is as follows:

Organic Collection - Additional Tonnes and Costs

	Area 1 (Halifax)	Area 2 (Dartmouth)	All HRM
*Additional organics, weekly collection (5 day week)	182 Tonnes	140 Tonnes	707 Tonnes
Existing biweekly Collection	\$76/Tonne	\$60/Tonne	\$80/Tonne
*5 day week, weekly collection	\$102/Tonne	\$81/Tonne	\$110/Tonne
Annual costs for weekly organic collection in July and August	(areas 1&2) \$100,000		\$250,000

(*Assumes 15.9% increase applies for each/all and is sustained.)

Based upon a five-day-week, weekly organics collection in July and August, the cost of collection increases by an average of 35%. As July and August are typically months when organics received at the two compost facilities is well within the 480 tonnes weekly limit, there are no contractual, operational, or financial implications with the processing of additional organics received through a weekly summer green cart collection. HRM would not realize any savings at Otter Lake or an increase in revenue at the two composting facilities, from a slight increase in organics collected with a weekly summer green cart service level.

Other Municipalities

Service Level:

In 1998, Regional Council approved the service level for solid waste/resources collection. Based upon the following analysis, Council approved the policy of only ICI properties in rural HRM receiving municipal collection services:

- fewer than 1,500 of the 11,000 industrial/commercial /Institutional (ICI) properties received municipal collection;
- many of the 1,500 ICI properties privately supplemented weekly collection with their own collection; and
- the biweekly schedule for residential properties would not meet the requirements of the ICI sector.

In 2003, Council approved the elimination of municipal collection services at all ICI properties effective July, 2005, thereby establishing a uniform standard across all of HRM.

Of approximately forty municipalities in Nova Scotia that have a green cart collection system, only Lunenburg and Mahone Bay provide weekly green cart collection for a six-week period during the summer. In Lunenburg and Mahone Bay, all properties (including restaurants, cafes and B&Bs) receive municipal collection services, including green cart collection. The policy to provide weekly summer green cart collection in Lunenburg and Mahone Bay during the short tourist season, responds mainly to reports of odours and flies

at establishments that serve food, which are clustered along the main street and/or waterfront area of high pedestrian traffic.

The ICI properties (including restaurants, cafés, bars, etc.) in HRM are source separating organics through private collection services, annually diverting in excess of 13,000 tonnes. Depending upon the volume of organics generated by the establishment and available storage, the frequency of private collection of organics is often more than once a week.

Conclusion

Residents in the weekly organic pilot program are generally more satisfied with a higher level of service, reported fewer nuisances of flies and odours, are willing to pay for the service and the weekly service diverts more organics to the compost facilities. Presumably, the findings would apply to residents across HRM, especially the urban core where many properties have limited side and front yards. Fewer nuisances are reported from residents in rural HRM, where properties have larger set backs and side or backyards.

The question staff has assessed, and for Council to consider, is what priority the weekly summer green cart collection should be given in relation to other demands of services maintained by HRM. Assessment by staff, recognizing other financial pressures (including the disposition of recoveries from Hurricane Juan), is that the marginal benefits, with a substantial cost per tonne for the additional tonnes of organics collected, do not warrant the provision of weekly summer green cart collection.

However, a review of the Solid Waste C&E campaign has identified an opportunity to enhance the duration and number of HRM advertisements on local television, instructing residents how best to control green cart nuisances during the summer months. Commencing June 24, 2004, the summer schedule for television advertisement will be enhanced from the current six weeks to ten weeks. Funds for the additional advertisements are available from the Solid Waste Resources C&E account.

Enhanced Service - Funding Options:

Should Council determine weekly summer green cart collection to be provided, the recovery of related expenses could be recovered through the general base tax rate or by the levy of an area rate for specific areas that the service is delivered.

BUDGET IMPLICATIONS

As included in the bid price for RFP 02-097 (Collection and Transportation of Source Separated Solid Waste) the cost of weekly green cart collection during the months of July and August for all of HRM is \$250,000. The cost of weekly collection in the summer in Area 1 (Halifax) and Area 2 (Dartmouth) is \$100,000.

Funding for weekly green cart collection next summer, has not been identified in the proposed 04/05 budget. As per the policy of Regional Council, funds for enhanced weekly summer green cart collection require a corresponding reduction offset to ensure no net increase, or alternately an increase in the tax rate for those residential properties receiving the enhanced collection service.

It is staff's opinion that based upon the measured incremental benefit of a weekly summer organics collection and the increase in the cost per tonne (at \$246/tonne for limited collection, and \$110/Tonne for all 8 areas) of the additional organic material diverted, that an expenditure for weekly green cart collection in the summer of 2004 is not cost effective.

Total expenditure for the weekly summer collection green cart pilot project was \$63,568 of the \$80,000 approved from the Service Improvement Reserve.

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation.

ALTERNATIVES

1. One alternative is to provide weekly summer green cart collection for all of HRM, at a cost of \$250,000 annually. Should Council proceed with weekly summer green cart collection, HRM must notify the residential contractor 60 days in advance of the commencement of the service. As the costs of this program exceed existing budget allocations, Council would need to identify a funding source through the 04/05 budget process. This is not recommended as the benefits of an enhanced service are marginal and not cost effective.
2. A second alternative is the provision of weekly summer green cart collection in the urban core of HRM where generally residential properties have smaller front and side yards. The cost of weekly summer green cart collection in Area 1 (Halifax) and Area 2 (Dartmouth) is approximately \$100,000. This is not recommended.
3. A third alternative is weekly summer green cart collection in urban/suburban HRM (Halifax, Dartmouth, Bedford, Sackville, Cole Harbour, Beechville, Lakeside, Timberlea) at a cost of approximately \$180,000 annually. This is not recommended.
4. A fourth alternative is the provision of weekly summer green cart collection in peninsula Halifax and downtown Dartmouth at a cost of approximately \$40,000. This is not recommended.

ATTACHMENTS

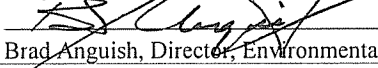
**Findings : Weekly Summer Collection Green Cart Pilot Project
Council Report**

April 6, 2004

HRM Pilot Study of Weekly Organics Cart Collection (Results and Findings)

Additional copies of this report, and information on its status, can be obtained by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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Halifax Regional Municipality

Pilot Study of Weekly Organic Cart Collection

Final Report

December 2003

Prepared by



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1 Introduction

The purpose of the Weekly Organic Cart Collection Pilot Study was to determine the benefits of a weekly collection of organics during the summer months. The results were to be measured in terms of:

1. Organic material collected;
2. Set-out rate frequency; and
3. Customer satisfaction.

In particular, answers to the following questions were pursued:

1. Do residents who have weekly collection set their organic carts at the curb more often than those with bi-weekly collection?
2. Does weekly collection translate into organic tonnage capture rates that are higher, lower or the same as in areas with bi-weekly collection?
3. Does weekly collection reduce the instances of nuisance factors with the organic carts, particularly nuisances with odours, flies and maggots?
4. Are customers more satisfied with weekly collection than bi-weekly collection?
5. Are customers willing to pay more taxes for increased collection of organics during the summer months?

This report is divided into five sections:

1. Introduction: describes the purpose of the study and the structure of this report;
2. Methodology: describes the methodologies used to conduct the study;
3. Results: provides the results of the pilot study;
4. Discussion: interprets and discusses the results; and
5. Summary of Conclusions: presents the conclusions of the study.

2 Methodology

The pilot study was carried out over an eight-week period beginning on Monday July 7, 2003 and ending on Friday August 29, 2003.

Three areas within the study group received weekly collection of household organics: the Halifax Tuesday organics collection area, the Halifax Thursday organics collection area, and the Dartmouth Thursday organics collection area. The Halifax Wednesday organics collection area was used as a control group. Table 2.1 below lists their approximate household populations.

Collection Study Area	Pilot/Control	Approx. Households
Halifax Tuesday	Pilot	5,500
Halifax Thursday	Pilot	7,000
Dartmouth Thursday	Pilot	4,000
Halifax Wednesday	Control	6,000

For each area, the amount of organics collected through the organics program was measured, the set-out rates were monitored, and residents were surveyed for their feedback. The methodologies for each study component are described in sections 2.1 to 2.3.

2.1 Measuring Tonnage of Organics Material Collected

The amount of organics delivered to the organics composting facility during the pilot was measured at the facility each week. The organics collection trucks were weighed when they arrived at the facility and then again after the trucks were emptied. The tonnage of organic material collected was calculated by subtracting the weight of the empty truck from its weight when it was full. The tonnage for the pilot and the control areas was recorded and aggregated to determine the total weight of organics collected over the eight-week period.

A moisture content correction factor of 10% was applied to the bi-weekly collection tonnage. The correction factor was applied to account for the moisture loss that occurs during the first week of the bi-weekly collection so that the bi-weekly collection tonnage would be directly comparable to the weekly collection scenario.

There is little research to draw on to estimate the reduction in moisture content. It is important to note however that the correction factor must be integrated on a daily basis as the organic material added to the cart happens daily over the two week time period. For example, the moisture loss from material placed in the cart on day 1 of 13 will be greater than the moisture loss from day two material, etc. There are several factors that cannot be modeled this way, however, including the impact on moisture content from heat generated from the compost process, which may accelerate the drying process.

The correction factors are based upon evaporation rates associated with typical organics and are an estimate based upon assumed evaporation rates.

As a reference, the study team at SNC-Lavalin weighed the actual moisture reduction experienced in their own green carts after a two-week period. The results provided a favourable correlation.

Finally, per-household tonnage figures were calculated for each area. This was calculated by dividing the total tonnage of organics collected for a collection area by the approximate number of households in the area. The values for the areas receiving weekly collection were evaluated against the control to determine if more organic material was collected from households with weekly collection than from those with collection every other week.

2.2 Measuring Set-Out Rates

Set-outs were recorded for a sample of the households in each study area. Approximately 4,930 households were monitored in the areas receiving weekly collection, while 1,700 households were monitored in the control area. The sample sizes are listed in Table 2.2 below.

Study Area	Pilot/Control	Approx. Households	Sample Size (total)	Sample Size (%)
Halifax Tuesday	Pilot	5,500	1,612	29%
Halifax Thursday	Pilot	7,000	1,671	24%
Dartmouth Thursday	Pilot	4,000	1,646	41%
Halifax Wednesday	Control	6,000	1,700	28%

Statistically, a sample size of one in four of a target group of this size provides a very high confidence interval.

Two routes within each area were monitored by field data recorders. Each route covered between 790 and 859 households (the streets covered by the routes are listed in Appendix A). The field data recorders walked ahead of the organics collection trucks and noted if a green cart was set-out at each individual household. The field data recorders also noted if other organics or grass clippings (which were also considered 'other organics') were set-out along with the carts. Additionally, the recorders noted for possible future analysis the number of garbage bags and recycling bags left at curbside.

In some cases, the recorders monitored streets that had already received organics collection. If the cart was still by the curb, then the recorders would mark off that it had been set out. If the cart was sitting by the house, the recorders would mark a "pu" (which stood for "picked up") in the no column, since they could not be sure if the cart had been pulled back to the house by the resident, or if it had not been set out. Generally, a "pu" was treated as not being

set out (i.e. they did not participate for that week). It was noted however that the overall number of pu records was very small and would not change the conclusion of the study.

The data collected was analyzed to:

- Determine the set-out rates for bi-weekly collection and weekly collection;
- Determine the set-out rates for the regular weeks and the extra weeks in the weekly collection areas;
- Determine how often residents set their carts out during the eight-week period; and
- Determine how many residents took advantage of the extra weeks.

2.3 Measuring Customer Satisfaction

A door-to-door survey was conducted in the weekly and bi-weekly collection areas between Friday, September 19 and Thursday, September 25. Based upon a total number of 22,500 households in the overall study area, 385 households were surveyed to provide survey data with a 5% confidence interval at a 95% confidence level (that is, the survey results are accurate within 5%, 19 times out of 20). The number of surveys completed in the individual study areas was proportional to the overall distribution of households throughout the study areas. Table 2.3 below shows the number of surveys that were conducted in the individual study areas.

Area	Pilot/Control	Approx. Households	Percentage of Total Households	Number of Households Surveyed
Halifax Tuesday	Pilot	5,500	24%	92
Halifax Thursday	Pilot	7,000	31%	119
Dartmouth Thursday	Pilot	4,000	18%	69
Halifax Wednesday	Control	6,000	27%	105
<i>Total</i>		22,500		385

The survey was conducted to determine customer satisfaction with the collection frequency in the test areas, and also in the control area. In particular, the survey was to determine:

- If householders took advantage of the weekly collection;
- If householders had nuisance issues with their carts during the test period;
- If they felt that weekly collection diminished the amount of nuisance issues;
- If they prefer weekly collection to bi-weekly collection during the summer months; and
- If they are willing to pay more, through their taxes, for this increased collection service.

The survey form can be found in Appendix B.

3 Results

3.1 Tonnage of Material Collected

Table 3.1 below shows the average weekly tonnage of organics per household for the areas receiving weekly collection.

Study Area	Pilot/Control	Average Weekly Tonnage (T)	Approx. Number of Households	Average Weekly Generation (kg/hh)
Halifax Tuesday	Pilot	22.35	5,500	4.1
Halifax Thursday	Pilot	37.79	7,000	5.4
Dartmouth Thursday	Pilot	20.34*	4,000	5.1
<i>Average for Total Pilot Area</i>				4.9

* The pilot started on a week when the Dartmouth Thursday collection route had their regular bi-weekly collection of organics. Because of this, the tonnage value for the first week of the pilot in the Dartmouth Thursday collection area actually included two weeks of organics. For the purpose of this study, the value was divided by 2 to provide a value for the tonnage of organics collected during the first week of the pilot in the Dartmouth Thursday area.

Table 3.2 shows the average tonnage per household generated bi-weekly in the control area.

Study Area	Pilot/Control	Average Bi-Weekly Tonnage (T)	Approx. Number of Households	Average Bi-Weekly Generation (kg/hh)
Halifax Wednesday	Control	52.89*	6,000	8.8

* Average bi-weekly tonnage = measured average bi-weekly tonnage 48.08 T plus moisture correction of 10%

The weekly tonnages are found in Appendix C.

3.2 Set-Out Rates

3.2.1 Rates

Table 3.3 presents the average set-out rates for the weekly and bi-weekly collection areas. As can be seen in the table, the average set-out rate was greater in the bi-weekly collection area than in the weekly collection areas. In the weekly collection areas, households were found to set their cart out more often on their regular collection day than on the extra week.

Weekly/ Bi-Weekly	Average Set- Out Rate	Average Set-Out Rate (Regular Weeks)	Average Set-Out Rate (Extra Weeks)
Weekly	53.2%	60.3%	46.1%
Bi-Weekly (control)	68.5%		

As Table 3.4 illustrates, there were variations in the set-out rates according to route. For example, the set-out rates measured in Halifax Tuesday Route 2 were much greater than those measured in Halifax Tuesday Route 1.

Route	Average Set-Out Rate
<i>Pilot Areas</i>	
Halifax Tuesday – Route 1	37.5%
Halifax Tuesday – Route 2	72.5%
Halifax Thursday – Route 1	43.2%
Halifax Thursday – Route 2	67.5%
Dartmouth Thursday – Route 1	51.5%
Dartmouth Thursday – Route 2	47.0%
<i>Control Area</i>	
Halifax Wednesday – Route 1	58.5%
Halifax Wednesday – Route 2	78.5%

The set-out rates for each week can be found in Appendix D.

3.2.2 Use of Extra Collections

The data analysis examined the number of times each household set their carts out at the curb for organics collection. The analysis found that:

- 48% of the pilot program participants set out carts 5 or more times during the 8 week study;
- 33% of the pilot program participants set out carts 6 or more times during the 8 week study;
- 18% of the pilot program participants set out carts 7 or more times during the 8 week study; and
- 6% of the pilot program participants set out carts every week during the study.

Table 3.5 below shows on average how often households in the study areas set-out their carts for organics collection.

Pilot/Control	Percentage of Households Setting their Cart Out <i>n</i> Times During the 8 Week Study Period								
	<i>n</i> = 0	<i>n</i> = 1	<i>n</i> = 2	<i>n</i> = 3	<i>n</i> = 4	<i>n</i> = 5	<i>n</i> = 6	<i>n</i> = 7	<i>n</i> = 8
Pilot	9%	7%	8%	12%	14%	15%	15%	12%	6%
Control	9%	9%	17%	29%	35%	na			

3.2 Customer Satisfaction

This section deals primarily with the results from the customer survey. The complete results from the customer survey, including comments, can be found in Appendix E.

3.2.1 Reported Occurrences of Set-Outs

In the door-to-door survey, householders were asked how often they set their carts out for collection during the 8-week pilot period. The majority of respondents reported setting their cart out each week; 60% of respondents in the pilot area reported setting their carts out each of the eight weeks, and 79% of respondents in the control area reported setting their carts out each of the four weeks. As Table 3.6 shows, the reported number of set-outs were significantly different from what was measured on the street.

Number of Times	Control (Surveyed, n=105)	Control (Monitored)	Pilot (Surveyed, n=280)	Pilot (Monitored)
Eight	Na	Na	60.0%	6%
Six or Seven	Na	Na	16.8%	27%
Five	Na	Na	8.6%	15%
Four	79.0%	35%	11.8%	14%
Three	14.3%	29%	2.1%	12%
Once or Twice	6.7%	26%	0%	15%
Not at all	0%	9%	0.7%	9%

There are several reasons that may explain the inconsistencies between the measured values and the self-reported, some of which may include:

1. The survey responses primarily reflect beliefs, perceptions and intentions of the survey respondents rather than their actual behaviours;
2. The respondents may have exaggerated how often they set-out their organics carts as they perceive that behaviour to be morally good;
3. The respondents may not have been able to remember occurrences of not setting the cart out, and therefore assumed that the cart was set out on each collection day;
4. The respondents may have wanted to give the impression that they were using the program properly and fully; and
5. The households visited by the surveyors may have been the ones that really did set their carts out more often.

It should be noted that surveys often experience over-reporting of behaviours that are perceived to be good.

3.2.2 Green Cart Nuisances

Table 3.8 shows the types of nuisance issues reported by the survey respondents.

Nuisance	Control (n=105)	Pilot (n=280)
None	47.6%	55.4%
Flies in the cart	28.6%	23.6%
Strong, unpleasant odours	25.7%	22.1%
Fruit flies in the home	23.8%	15.7%
Maggots	15.2%	8.9%
Rodents	1.9%	0.7%
Other	0%	1.1%

As seen in the table, fewer respondents in the area receiving weekly collection reported experiencing nuisances than those in the bi-weekly collection area.

3.2.3 Householder Absence

Table 3.8 below shows how many weeks householders reported being away from their home during the 8-week study period.

Number of Weeks	Control	Pilot
None	51.4%	57.5%
One Week	21.9%	21.4%
Two Weeks	20.0%	14.3%
Three Weeks	1.0%	2.9%
More than Three Weeks	4.8%	3.6%

3.2.4 Perceived Impact of Weekly Collection on Nuisances

In the customer survey, the survey respondents were asked if they agreed that weekly collection reduces the occurrence of green cart nuisances. They were then asked if they agreed that weekly collection eliminates the occurrence of green cart nuisances. The results are presented in Table 3.9 below.

Agreement	Reduces Occurrences		Eliminates Occurrences	
	Control (n=105)	Pilot (n=280)	Control (n=105)	Pilot (n=280)
Strongly agree	15.2%	51.1%	2.9%	10.7%
Somewhat agree	42.9%	24.6%	27.6%	30.0%
Agreement Total	58.1%	75.7%	30.5%	40.7%
Somewhat disagree	24.8%	16.4%	11.4%	21.4%
Strongly disagree	15.2%	5.3%	22.9%	25.4%
Disagreement Total	40.0%	21.7%	34.3%	46.8%
No answer	1.9%	2.5%	35.2%	11.79%

The table shows that the respondents from the areas receiving weekly collection were more likely to agree – and agree more strongly – that weekly collection will reduce green cart nuisances.

3.2.5 Willingness to Pay for Extra Service

Respondents were told that it would cost about \$3.00 per year per household for weekly collection of organics carts during July and August. They were then asked if they would be willing to pay an additional \$3.00 per year in municipal taxes for weekly collection of organics in July and August. As seen in Table 3.10, the respondents from the pilot areas were more likely to be willing to pay than those from the control area.

Willing to Pay?	Control (n=105)	Pilot (n=280)
Yes	42.9%	66.4%
No	54.3%	32.1%
Not Sure	1.0%	0.7%
No Answer	1.9%	0.7%

3.2.6 Collection Preference

As seen in Table 3.11 below, nearly three-quarters of respondents from the pilot area said that they would prefer to have their organics collected every week instead of every two weeks. In the control area, slightly less than half (46%) preferred weekly, while slightly more than half (54%) preferred bi-weekly.

Preference	Control (n=105)	Pilot (n=280)
Every two weeks	54.3%	27.9%
Weekly	45.7%	72.1%

4 Discussion

4.1 *Do residents who have weekly collection set their organic carts at the curb more often than those with bi-weekly collection?*

4.1.1 *Set-Out Rates*

The average set-out rate for households receiving bi-weekly collection (68.5%) was found to be 28.8% greater than those receiving weekly collection (53.2%) during the pilot.

The average set-out rate in the pilot areas was elevated during the regular collection weeks (60.3%) and lower during the extra weeks (46.1%). This trend was more pronounced during the initial weeks of the pilot and less so during the final weeks. The cause of this is unclear, but possible explanations may include that:

- Households may have been inclined to initially continue their bi-weekly pattern of organics collection; or
- Some households may not have been immediately aware of the pilot.

It should be noted that set-out rates varied between routes. For instance, the average set-out rate for route 2 in the Halifax Tuesday collection area was 35 percentage points greater than the rate for route 1 in the Halifax Tuesday collection area. The four routes with the highest average set-out rates were:

- Halifax Wednesday Route 2 (bi-weekly collection) – 78.5%
- Halifax Tuesday Route 2 (weekly collection) – 72.5%
- Halifax Thursday Route 2 (weekly collection) – 67.5%
- Halifax Wednesday Route 1 (bi-weekly collection) – 58.5%

At this time, the factors influencing the set-out rates in the study areas are not known and would require subsequent analysis and interpretation, including the consideration of demographics such as population densities, dwelling types, education and income levels, etc.

4.1.2 *Number of Set-Outs*

The overall participation rate for weekly collection was found to be lower than for bi-weekly collection. However, when the total number of set outs for the weekly areas are compared to the control participation rates, the weekly collection program results in a 55 % increase in the number of individual set-outs.

The following example is used to explain the rationale for this observation. Assume that there are two collection areas, and each contains 1,000

households. One area (Area A) receives bi-weekly collection of organics, while the other area (Area B) receives weekly collection of organics. In Area A, the average participation rate for bi-weekly organics collection is 68.5%. This amounts to 685 green cart set-outs every two weeks. In Area B, the average participation rate for weekly organics collection is 53.2%, which amounts to 532 green cart set-outs per week, or 1,064 set-outs every two weeks. This is 379 more green cart set-outs (an increase of 55%) for the area receiving weekly collection than the area receiving bi-weekly collection.

One implication of this finding is that the average number of stops that an organics collection truck makes over a two-week period will increase by 55% by going from bi-weekly collection to weekly collection.

4.1.3 Use of Extra Collections

While several households took advantage of the extra organics collections (nearly half of the households took advantage of the additional collections at least once, and one-third took advantage of them at least twice), it does not appear that providing extra collections increased overall participation in the program.

In both the pilot areas and in the control area, 9% of households did not participate in the organics collection program, and about 80% used the cart on average at least once per month (for some households, using the cart once per month may be sufficient. For example, individuals that backyard compost or families consisting of only one or two people may not produce significant amounts of putrefiable waste, which may allow them to set their cart out for collection only once per month).

4.1.4 Affect of Absences on Set-Out Rates

Householders being away from their homes for summer vacation during the pilot period may have resulted in lower set-out rates than might be experienced during other parts of the year, but fairly represents expected vacation behaviours for subsequent years. For instance, 47.7% of survey respondents in the control area reported that they were away from their home for at least one week, with 42.2% reporting so in the pilot areas. In general, the percentage of householders reporting time away from their homes during the months of July and August was marginally greater in the control area than in the pilot area.

4.1.5 Conclusions

- The set-out rate is lower for weekly collection when compared to the set-out rates for bi-weekly collection.
- The total number of set-outs during a two-week period increases by 55% with weekly collection.
- Weekly collection does not appear to increase overall participation in the organics collection program; however, those that participate now do so more frequently with weekly collection.

4.2 Does weekly collection translate into organic tonnage capture rates that are higher, lower or the same as in areas with bi-weekly collection?

4.2.1 Tonnage Generation Rates

Weekly collection resulted in a tonnage increase of 11.2% in the average amount of organics recovered per household.

To determine this, the average weekly tonnage of organics generated per household in the areas receiving weekly collection (4.9 kg/hh – see Table 3.1)¹ was extrapolated to bi-weekly by multiplying it by two. This provided a value of 9.8 kg/hh for the average amount of organics collected per household for the areas receiving weekly collection of organics. As see in Table 3.2, the average bi-weekly generation of organics per household in the area receiving bi-weekly collection was found to be 8.8 kg/hh (after correction for moisture loss). When comparing the two values, it is seen that the areas that received weekly collection of organics had 11.2% more organics recovered per household than the area that received bi-weekly collection of organics.

4.2.2 Conclusions

- Weekly collection was found to increase capture rates by 11.2% compared to bi-weekly collection.

¹ Note that this average generation per household is for all of the households in the pilot areas (a total of approximately 16,500 households). The tonnage per household of organics for the three pilot areas receiving weekly collection are found in Table 3.1.

4.3 Does weekly collection reduce the instances of nuisance factors with the organic carts, particularly nuisances with odours, flies and maggots?

4.3.1 Reported Nuisances

The survey results reveal a trend that appears to indicate that households receiving weekly collection are likely to experience fewer green cart nuisances. However, the differences in the rates of nuisances reported between the control and the pilot areas were small (8.1 percentage points or less). Only three nuisance categories had variances between the pilot and control areas greater than the confidence interval: no nuisances (7.8 percentage points), fruit flies in the home (8.1 percentage points), and maggots (6.3 percentage points).

4.3.2 Perceived Impact of Weekly Collection on Green Cart Nuisances

The survey data shows that residents in the weekly collection areas are more likely than those in the bi-weekly areas to strongly agree that weekly collection reduces green cart nuisances. One possible explanation for this is that, if the residents in the pilot areas felt they experienced fewer nuisances, then they may attribute it to the weekly collection.

It is currently unclear what impact, if any, other factors in the pilot and control areas may have had on green cart nuisances during the study period. For example, in September 2002, HRM conducted a survey of its urban and suburban residents to determine the level of satisfaction with the organics collection program. With all things being equal, then one would expect that the amount of green cart nuisances experienced in the control area should be similar to those amounts reported in the September 2002 survey. However, the amount of green cart nuisances reported in the control area was considerably lower than what was reported in the September 2002 survey. Other factors that may have reduced the incidence of green cart nuisances in the control area, and therefore in the pilot area, may include:

- Climate conditions, such as temperature, humidity and rainfall; and/or
- Changes in green cart usage behaviours.

4.3.3 Conclusions

- The customer survey indicates that weekly collection may reduce green cart nuisances.
- Residents that received weekly collection were more likely to agree that weekly collection reduces green cart nuisances than those that received bi-weekly collection.

4.4 Are customers more satisfied with weekly collection than bi-weekly collection?

4.4.1 Collection Preference

Nearly three-quarters of households in the pilot area would prefer to have weekly organics collection as opposed to bi-weekly collection, based on survey results. In the control area, slightly more than half prefer bi-weekly collection, while slightly less than half would prefer weekly. This may indicate that residents are significantly more likely to prefer weekly collection once they experience it.

4.4.2 Collection Preference and the Perceived Impact of Weekly Collection

In Tables 4.1 and 4.2, it can be seen that those who agree that green cart nuisances are reduced by weekly collection are more likely to prefer weekly collection, and those that disagree are more likely to prefer bi-weekly collection. For example, in the pilot area (see Table 4.1), 95.8% of survey respondents who strongly agreed that weekly collection in the summer reduces the occurrence of green cart nuisances preferred weekly collection of organics. Conversely, 93.3% of survey respondents that disagreed with that statement preferred bi-weekly collection.

		Degree of Agreement that Weekly Collection Reduces Green Cart Nuisances (Pilot Area)					
		Strongly Agree (n = 143)	Somewhat Agree (n = 69)	Somewhat Disagree (n = 46)	Strongly Disagree (n = 15)	Strongly + Somewhat Agree (n = 212)	Strongly + Somewhat Disagree (n = 61)
Collection Preference	Every two weeks	4.2%	24.6%	78.3%	93.3%	10.8%	82.0%
	Weekly	95.8%	75.4%	21.7%	6.7%	89.2%	18.0%

As seen in Table 4.2, this trend was even more pronounced in the control area: 100.0% of survey respondents that strongly agreed with the statement preferred weekly collection of organics, while 100.0% of survey respondents that strongly disagreed preferred bi-weekly collection.

		Degree of Agreement that Weekly Collection Reduces Green Cart Nuisances (Control Area)					
		Strongly Agree (n = 16)	Somewhat Agree (n = 45)	Somewhat Disagree (n = 26)	Strongly Disagree (n = 16)	Strongly + Somewhat Agree (n = 61)	Strongly + Somewhat Disagree (n = 42)
Collection Preference	Every two weeks	0.0%	31.1%	100.0%	100.0%	23.0%	100.0%
	Weekly	100.0%	68.9%	0.0%	0.0%	77.0%	0.0%

This indicates that the preference for weekly collection is strongly correlated to whether residents believe that weekly collection will reduce green cart nuisances.

4.4.3 Conclusions

- Customers appear to be more satisfied with weekly collection than with bi-weekly collection.
- Those who agree that green cart nuisances are reduced by weekly collection are more likely to prefer weekly collection, and those that disagree are more likely to prefer bi-weekly collection.

4.5 Are customers willing to pay more taxes for increased collection of organics during the summer months?

4.5.1 Willingness to Pay

More customers in the pilot area were willing to pay an additional \$3 per year in taxes for increased collection than in the control area. However, in both the control area and in the pilot areas, the willingness to pay was found to be closely associated with whether the survey respondents preferred weekly collection or not. As can be seen in Table 4.3, about 9 in 10 survey respondents that said they preferred weekly collection also said that they were willing to pay the extra \$3.00 per year. Conversely, about 9 in 10 survey respondents expressing preference for bi-weekly collection also said that they were not willing to pay the extra \$3.00 per year.

		Collection Preference			
		Pilot		Control	
		Every two weeks (n = 78)	Weekly (n = 202)	Every two weeks (n = 57)	Weekly (n = 48)
Willing to Pay?	Yes	7.7%	89.1%	1.8%	91.7%
	No	89.7%	9.9%	93.0%	8.3%

4.5.2 Conclusions

- More customers in the pilot area were willing to pay an additional \$3.00 per year in taxes for increased collection than in the control area.
- Customers that prefer weekly collection are significantly more willing to pay the extra \$3.00 per year than those customers that prefer bi-weekly collection.

5 Summary of Conclusions

Set-out rates

- The set-out rate is lower for weekly collection when compared to the set-out rates for bi-weekly collection.
- The total number of set-outs during a two-week period increases by 55% with weekly collection.
- Weekly collection does not appear to increase overall participation in the organics collection program.

Tonnage capture rates

- Weekly collection was found to increase capture rates by 11.2% compared to bi-weekly collection.

Green cart nuisances

- The customer survey indicates that weekly collection may reduce green cart nuisances.
- Residents that received weekly collection were more likely to agree that weekly collection reduces green cart nuisances than those that received bi-weekly collection.

Satisfaction with weekly collection

- Customers appear to be more satisfied with weekly collection than with bi-weekly collection.
- Those who agree that green cart nuisances are reduced by weekly collection are more likely to prefer weekly collection, and those that disagree are more likely to prefer bi-weekly collection.

Willingness to pay for extra collection

- More customers in the pilot area were willing to pay an additional \$3.00 per year in taxes for increased collection than in the control area.
- Customers that prefer weekly collection are significantly more willing to pay the extra \$3.00 per year than those customers that prefer bi-weekly collection.

Appendix A: Monitoring Routes

Halifax Tuesday – Route 1

Street	Odd Civic Numbers	Even Civic Numbers
Creighton Street	2013-2129, 2307-2379	2010-2130, 2324-2378
Maynard Street	2003-2117B, 2383-2315	2008-2120, 2368-2308
Bauer Street	2013-2119	2012B-2122
Falkland Street	5523-5667	5514-5658
Cogswell Street	5515-5659	None
North Park Street	2003-2075	None
Cornwallis Street	5653-5677	5558-5664
Woodill Street	5665-5695	5664-5690
Agricola Street	2347-2371, 2411-2539	2344-2378, 2412-2550
Harris Street	5679-5693	5654-5694
West Street	5781-5837	5774-5872
Willow Street	5747-6177	5714-6178
Charles Street	5795-6175	5812-6192
John Street	2419-2483	2420-2500
Davison Street	2419-2487A	None
Robie Street	None	2390-2516
Clifton Street	2315-2403	2316A-2396
Hunter Street	2315-2391	2304-2374
Compton Avenue	6025-6091	6024-6080
Williams Street	6027-6065	6024-6058
Cunard Street	6011-6051	6018-6082

Halifax Tuesday – Route 2

Street	Odd Civic Numbers	Even Civic Numbers
Hennessey Place	5501-5551	None
Kane Place	5507-5549	5508-5552
Livingstone Place	5507-5549	5508-5552
Stairs Place	5508-5550	5507-5551
Stanley Place	5506-5550	5507-5551
Columbus Place	5507-5551	5508-5552
Merkel Place	5507-5555	5512-5554
Cabot Place	5508-5554	5505-5555
Sebastian Place	None	5508-5552
Agricola Street	3167-3401	3168-3400
Kane Street	5865-5887	5860
Robie Street	3169-3365, 3585-3761	3244-3362, 3570-3768
Cabot Street	5685B-5895	5688A-5882
Isleville Street	None	3144-3350
Stairs Street	5659-5883	5640-5880
Columbus Street	5655-5881	5658-5882
Memorial Drive	3675-3927	3742-3884
Basinview Drive	3655-3855	3672-3860
High Street	3583-3801	3604-3800
Rosemade Avenue	3609-3727	3580-3704
Leeds Street	5909-6221	6004-6224

Halifax Wednesday – Route 1

Street	Odd Civic Numbers	Even Civic Numbers
Poplar Street	2019-2593	2028-2596
Elm Street	2005-2585	2018-2594
Kline Street	2025-2597	2018-2598
Chebucto Road	6235-6241, 6277-6319	6208-6422
Duncan Street	6209-6329	6204-6326
Lawrence Street	6111-6327	6106-6328
Allan Street	6121-6321	6120-6320
Beech Street	1727-2113	1722-2112
Connaught Avenue	1759-1771, 1929-1969	1734-1784, 1910-1984
Bloomington Terrace	1725-1791, 1919-1987	1720-1790, 1910-1988
Rosebank Avenue	1731-1791, 1917-1979	1748, 1932-1988

Halifax Wednesday – Route 2

Street	Odd Civic Numbers	Even Civic Numbers
Young Street	6327-6577	6326-6580
Cork Street	6337-6577	6324-6576
Liverpool Street	6323-6575	6336-6574
London Street	6335-6577	6336-6580
Edinburgh Street	6327-6579	6328-6574
Almon Street	6325-6573	6326-6572
Berlin Street	6333-6475	6326-6470
Vienna Street	6331-6479	6332-6480
Summit Street	6341-6483	6342-6470
Seaforth Street	6235-6485	6228-6476
North Street	6221-6317	6220-6316
Dublin Street	2621-3025	2650-3020

Dartmouth Thursday – Route 1

Street	Odd Civic Numbers	Even Civic Numbers
Boland Road	1-23, 75-79	2-20
Cairn Street	1-17	None
Graham Street	3-25	2-24
Westbrook Avenue	3-19	4-16
Eastbrook Avenue	3-19	2-18
Frances Street	1-35	2-34
Victoria Road	23-171, 203-207	26-180
Myrtle Road	11-23	4-22
Maple Street	3-19	None
Pine Street	7-65	2-58
Rose Street	3-89	4-84
Oak Street	15, 19	6
Tulip Street	1-79	2-80
Dahlia Street	1-63	2-50
Crichton Avenue	67-221	72-218
Oakdale Crescent	1-25	2-66
Mount Pleasant Avenue	5-51	6-52
Crichton Park Road	1-31	8-32
Clearview Crescent	2,4	3-9

Dartmouth Thursday – Route 1 (continued)

Street	Odd Civic Numbers	Even Civic Numbers
Forest Road	1-35	2-36
Thistle Street	19-127	18-124
Slayter Street	1-79	2-78
Park Avenue	None	34-54
King Street	None	8-38, 110
Church Street	39, 49	42, 44
Wentworth Street	1-9, 43-75	50-74
Cheltonham Court	7-19	4-14

Dartmouth Thursday – Route 2

Street	Odd Civic Numbers	Even Civic Numbers
Sinclair Street	1-29	4-54
Wyndholme Avenue	17-23, 41, 45, 47	20-28, 44, 46
Medford Street	5-27	4-14
Highwood Street	5-23	6, 8
Murray Hill Drive	1- 49	2-50
Summit Street	5-21	2-20
Portland Street	215-307, 321-401	212-310, 322-414
Joffre Street	1-275	2-276
Canterbury Street	5-29	8-28
Silvers Road	1-11	6
Hawthorne Street	7-71	6-84
James Street	3-23	10-24
Erskine Street	5-51	2-22, 38-48
Elliot Street	7-39	10-26
Pleasant Street	11-161	10-150
Newcastle Street	3-95	16-70, 76-88
Hazelhurst Street	33-67	36-66
Blink Bonnie Terrace	1-29	20-30
Johnstone Avenue	57-101	52-100
Dustan Street	1-29	2-46
Rodney Road	1-37	6-48

Halifax Thursday – Route 1

Street	Odd Civic Numbers	Even Civic Numbers
Melrose Street	5-251	2-252
Sunnybrae Avenue	3-43, 75-128	2-44, 76-128
Central Avenue	7-47, 79-135	2-48, 80-136
Rosedale Avenue	5-153	10-154
Woodbury Drive	1-39	2-40
Rockhaven Drive	25-47	26-38
Dickson Avenue	1-29	8-22
Cascade Drive	7-19	2-20
Oakhill Drive	3-33	2-34
Torrington Drive	9-21	8-24
Flamingo Drive	51-127	52-116
Amberwood Court	5-19	4-20
Dipper Crescent	3-43	3-43
Kingfisher Crescent	1-41	4-58
Nightingale Drive	3-75	2-82
Canary Crescent	3-47	2-50

Halifax Thursday – Route 2

Street	Odd Civic Numbers	Even Civic Numbers
Woodward Crescent	3-79	4-90
Glenforest Drive	69-221	70-210
Willowbend Court	13-57	18-42
Hillwood Crescent	5-49	4-38
Tangmere Crescent	7-93	10-114
Deepwood Crescent	5-129	6-118
Hazelholme Drive	5-123	2-122
Clayton Park Drive	9-97	12-96
Bayview Road	27-115	32-102
Laurentide drive	1-55	2-50
Gateway Road	11-53	24-52
Chartwell Lane	1-67	2-62
Lincoln Crescent	35-99	80
Wedgewood Avenue	1-61	6-62
Wilson Boulevard	3-17	2-18
Glenn Drive	3-29	4-28
Beechwood Terrace	3-19	4-22
Edward Laurie Drive	1-61	8-56
Broadholme Lane	5-29	2-30
Ohara Drive	1-21	4-22
Marlwood Drive	5-51	4-48
Robert Allen Drive	1-31	4-30

Appendix B: Survey Questions

HRM Organics Collection Pilot Customer Survey- Summer 2003

Introduction

During July and August, the Halifax Regional Municipality ran an 8-week pilot project in your area to evaluate the weekly collection of the organics green carts. Do you mind answering 10 brief questions to help us in the evaluation? It should take only two or three minutes.

1. During the 8 weeks of the pilot, how often did you put your cart out? (Select only one.)

- Eight times (in test area only)
- Six or seven times (in test area only)
- Five times (in test area only)
- Four times
- Three times
- Once or twice
- Not at all

2. Did you experience any of the following nuisances with your green cart during the months of July and August? (Select only one.)

- Strong, unpleasant odours
- Fruit flies in the home
- Flies in the cart
- Maggots
- Rodents
- Other (please specify)
- No nuisances

3. How many weeks were you away from your home during the months of July and August? (Select only one.)

- None
- One week
- Two weeks
- Three weeks
- More than three weeks

In the next two questions, we would like to know if you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statements.

4. "Weekly organics collection in the summer reduces the occurrence of cart nuisances?" Do you: (Select only one.)

- Strongly agree
- Somewhat agree
- Somewhat disagree
- Strongly disagree

5. "Weekly organics collection in the summer eliminates the occurrence of cart nuisances?" Do you: (Select only one.)

- Strongly agree
- Somewhat agree
- Somewhat disagree
- Strongly disagree

6. (Ask of test area respondents only) Have you experienced any benefits in having organics collected on a weekly basis? If so, what were they?

7. Collecting the organic green cart each week during July and August would cost an extra \$3.00 per year per household. Would you be willing to pay an additional \$3.00 per year in municipal taxes for weekly collection of organics in July and August? (Select only one.)

- Yes
- No

8. Should green cart organics be collected every week or every two weeks in the summer?

- Every week
- Every two weeks

9. Do you own or rent these premises?

- Own
- Rent

10. Do you have any comments about the pilot?

(For canvasser) Indicate pilot area of respondent - do not ask

- Tuesday Halifax
- Wednesday Halifax (Control)
- Thursday Halifax
- Thursday Dartmouth

Appendix C: Organics Tonnage Rates

Weekly Tonnage Generation by Area

Collection Area	July 7 - July 11	July 14 - July 18	July 21 - July 25	July 28 - Aug 1	***Aug 4 - Aug 8	Aug 11 - Aug 15	Aug 18 - Aug 22	Aug 25 - Aug 29
Dartmouth (Thursday)	*47.34	14.85	27.63	13.85	19.51	16.63	25.23	21.32
Halifax (Thursday)	21.24	58.73	28.63	45.86	19.59	54.55	36.49	37.16
Halifax (Tuesday)	25.21	26.43	14.68	28.22	15.09	27.23	15.69	26.29
**Halifax (Wednesday)		48.45		45.10		48.16		50.54

Shaded boxes indicate 'weekly collection'; unshaded are 'regular collection'

*Represents two weeks of organics.

**control

*** August 4th - Holiday

Appendix D: Set-Out Rates

Comparison of Set-Out Rates by Route (%)

	July 7 - July 11	July 14 - July 18	July 21 - July 25	July 28 - Aug 1	**Aug 4 - Aug 8	Aug 11 - Aug 15	Aug 18 - Aug 22	Aug 25 - Aug 29
Route Name								
Dartmouth - Route 1 (Thursday)	66.4	40.9	61.0	43.8	50.4	46.6	57.0	46.3
Dartmouth - Route 2 (Thursday)	60.8	38.4	46.5	46.1	42.0	43.8	50.1	48.2
Halifax - Route 1 (Thursday)	29.6	61.7	34.4	57.3	25.3	45.6	42.9	48.9
Halifax - Route 2 (Thursday)	59.6	49.3	56.6	77.8	60.7	83.1	66.3	86.5
Halifax - Route 1 (Tuesday)	38.7	42.0	29.7	41.0	20.2	47.5	36.3	44.3
Halifax - Route 2 (Tuesday)	48.0	79.4	75.2	84.8	58.2	76.9	70.7	86.9
*Halifax - Route 1 (Wednesday)		61.8		61.6		54.3		56.3
*Halifax - Route2 (Wednesday)		75.5		80.8		82.2		75.5
Shaded boxes indicate 'weekly collection'; unshaded are 'regular collection'								
*Control Group - Hfx. Route 1&2 (Wednesday)								
**August 4th - Holiday								

Appendix E: Customer Survey Results

Survey Overview

Respondent Metrics

Respondents from Control:	105
Respondents from Pilot:	280

Survey Results

The following is a tabular depiction of the responses to each survey question. Additional comments provided by respondents, if any, are included after each table.

Section - Participation

1. During the 8 weeks of the pilot, how often did you put your cart out?

Number of Times	Control (n=105)	Pilot (n=280)	Control (Monitored)	Pilot (Monitored)
Eight	Na	60.0%	Na	6%
Six or Seven	Na	16.8%	Na	27%
Five	Na	8.6%	Na	15%
Four	79.0%	11.8%	35%	14%
Three	14.3%	2.1%	29%	12%
Once or Twice	6.7%	0%	26%	15%
Not at all	0%	0.7%	9%	9%

Comments/Notes for "Not at all"(Pilot):

- Away all summer

2. Did you experience any of the following nuisances with your green cart during the months of July and August?

Nuisance	Control (n=105)	Pilot (n=280)
None	47.6%	55.4%
Flies in the cart	28.6%	23.6%
Strong, unpleasant odours	25.7%	22.1%
Fruit flies in the home	23.8%	15.7%
Maggots	15.2%	8.9%
Rodents	1.9%	0.7%
Other	0%	1.1%

Comments/Notes (from Control):

- Flies from the mini-bin (2 responses)

Comments/Notes (from Pilot):

- Ants
- Didn't have nuisances each week
- Earwigs
- From mini-bin, not as bad as last summer
- From the mini-bin

- Have a backyard composter
- Have an outdoor compost as well, and wrap food waste in cart
- In other summers
- Less than other summers
- Less nuisance than last summer
- Mild this year
- Much less nuisances than other summers
- Not as bad as previous summers
- Not like other summers
- Nuisances not as bad as last summer
- Only get smells sometimes because I eat a lot of fish
- Pigeons, crows
- Probably due more to weather conditions, not necessarily the weekly collection
- Regularly wash out the cart and wrap smelly things
- Some unpleasant odour, but not really that bad

3. How many weeks were you away from your home during the months of July and August?

Number of Weeks	Control (n=105)	Pilot (n=280)
None	51.4%	57.5%
One week	21.9%	21.4%
Two weeks	20.0%	14.3%
Three weeks	1.0%	2.9%
More than three weeks	4.8%	3.6%
No answer	1.0%	0.4%

Comments/Notes for "None":

Normally away more in the summer

Section - Agreement Questions

4. "Weekly organics collection in the summer reduces the occurrence of cart nuisances?"

Do you:

Agreement	Control (n=105)	Pilot (n=280)
Strongly agree	15.2%	51.1%
Somewhat agree	42.9%	24.6%
<i>Total</i>	<i>58.1%</i>	<i>75.7%</i>
Somewhat disagree	24.8%	16.4%
Strongly disagree	15.2%	5.3%
<i>Total</i>	<i>40%</i>	<i>21.7%</i>
No answer	1.9%	2.5%

Comments/Notes for "Strongly disagree" (Control):

- Only washing out the cart seems to help

Comments/Notes for "No answer"(Pilot):

- Have never had any trouble with nuisances

Comments/Notes for "Somewhat agree" (Pilot):

- Has not really been a problem anyway
- Less time to "ferment"
- Wraps food and puts it in newspaper before putting it in the cart

Comments/Notes for "Somewhat disagree" (Pilot):

- Didn't have any nuisances before
- Didn't notice any nuisances before
- Don't see the need
- Had no problems to begin with

Comments/Notes for "Strongly agree" (Pilot):

- Better with weekly collection
- Less smell

5. "Weekly organics collection in the summer eliminates the occurrence of cart nuisances?" Do you:

Agreement	Control (n=105)	Pilot (n=280)
Strongly agree	2.9%	10.7%
Somewhat agree	27.6%	30.0%
<i>Total</i>	<i>30.5%</i>	<i>40.7%</i>
Somewhat disagree	11.4%	21.4%
Strongly disagree	22.9%	25.4%
<i>Total</i>	<i>34.3%</i>	<i>46.8%</i>
No answer	35.2%	11.79%

Comments/Notes for "Somewhat agree" (Pilot):

- Should have cart regularly washed out

Comments/Notes for "Somewhat disagree" (Pilot):

- Nothing but good practices and proper disposal will eliminate nuisances

Section - Benefits and Cost

6. What benefits have you experienced in having organics collected on a weekly basis?

Control:

Not asked

Pilot:

Multiple responses:

- Weekly collection enabled me to fit more organics into the cart: 5.7%
- Weekly collection is more convenient: 9.3%
- Weekly collection reduced nuisances: 11.8%

Additional single responses:

- Didn't know about the pilot
- Didn't participate in the pilot
- Didn't need the pilot
- Weekly collection made me a more vigilant composter

7. Collecting the organic green cart each week during July and August would cost about \$3 per year per household. Would you be willing to pay an additional \$3 per year in municipal taxes for weekly collection of organics in July and August?

Willing to Pay?	Control (n=105)	Pilot (n=280)
Yes	42.9%	66.4%
No	54.3%	32.1%
Not Sure	1.0%	0.7%
No Answer	1.9%	0.7%

Comments/Notes for "No" (Control):

- Will only pay if restaurants, apartments, etc... have to pay and start using green bin program

Comments/Notes for "No" (Pilot):

- Already pay too much
- HRM should be able to re-budget to pay for this service
- Shouldn't have to pay
- There's no need for it

Comments/Notes for "Not sure" (Pilot):

- Would pay it for the benefit of HRM overall, but for me personally, no

Comments/Notes for "Yes" (Pilot):

- As long as the cost does not keep escalating
- But feels they pay enough taxes already
- If overall, people wanted it, but doesn't really seem necessary
- Will pay this cost only if does not keep going up and up every summer. Tired of paying for things (i.e. harbour cleanup) that never happen
- Would pay if she owned, but she is a renter, so she won't have to pay
- Would reluctantly pay

8. Would you prefer to have your organics collected every week or every two weeks in the summer?

Preference	Control (n=105)	Pilot (n=280)
Every two weeks	54.3%	27.9%
Weekly	45.7%	72.1%

9. Do you own or rent these premises?

	Control (n=105)	Pilot (n=280)
Own	94.3%	89.6%
Rent	4.8%	8.6%
No Answer	1.0%	1.8%

Comments/Notes for "Rent" (Pilot):

- Co-op

10. Do you have any comments about the pilot?

Control

Multiple responses

- Weekly collection is more convenient: 7.6%
- Weekly collection does not make any difference (in terms of nuisances, etc...): 3.8%
- Bi-weekly collection is fine: 6.7%
- Weekly collection reduces nuisances: 5.7%
- Use cart properly (i.e. clean it, wrap food waste), don't get nuisances, no need for weekly: 6.7%
- Want weekly collection, not willing to pay for it: 1.9%
- Don't generate enough organics to justify weekly collection: 3.8%
- Weekly collection was great, would like to have it every summer: 1.9%
- Don't experience nuisance problems anyway, no use for weekly collection: 1.9%
- Won't use weekly collection, and don't want to pay additional taxes: 1 response
- Should prolong weekly collection into September: 1 response
- Will pay for weekly as long as the cost doesn't keep going up: 1 response
- Away a lot in the summer, no use for weekly collection: 1 response

Additional single responses

- Would HRM do a follow-up study after weekly collection has been implemented to see if people noticed improvements?

Pilot

Multiple responses

- Weekly collection is more convenient: 8.6%
- Weekly collection does not make any difference (in terms of nuisances, etc...): 5.4%
- Bi-weekly collection is fine: 3.9%
- Weekly collection reduces nuisances: 13.6%
- Use cart properly (i.e. clean it, wrap food waste), don't get nuisances, no need for weekly: 5.7%
- Want weekly collection, not willing to pay for it: 2.1%
- Don't generate enough organics to justify weekly collection: 5.7%
- Weekly collection was great, would like to have it every summer: 8.9%
- Don't experience nuisance problems anyway, no use for weekly collection: 3.6%
- Won't use weekly collection, and don't want to pay additional taxes: 2.5%
- Should prolong weekly collection into September: 3.6%
- Will pay for weekly as long as the cost doesn't keep going up: 1 response
- Away a lot in the summer, no use for weekly collection: 1.8%
- Weekly collection enabled me to fit more organics into the cart: 1%
- Didn't know about the pilot (5 responses)

Additional single responses

- The weekly collection shouldn't be done in July and August, but instead during September and April or May
- End of pilot project was not clear, slightly confusing
- Having the cart emptied weekly helps to keep you wanting to continue recycling

- Liked weekly, but mentioned that cart was always collected late, however since the weekly collection stopped, the cart is collected earlier
- Pilot wasn't well advertised, a neighbor told him during the first week, just in time
- Think that nuisances were down, but feel that may have been more weather related...it's too hard to tell from one summer whether or not the weekly collection is beneficial
- Thought the increase in flies was likely due to the weather/heat of the summer

Section - Survey Area

11. Indicate pilot area of respondent

Control:

54.3%	57	Wednesday Halifax Route 1 (Control)
45.7%	48	Wednesday Halifax Route 2 (Control)

Pilot:

42.5%	119	Thursday Halifax (Route count not available)
18.9%	53	Tuesday Halifax Route 1
13.9%	39	Tuesday Halifax Route 2
12.5%	35	Thursday Dartmouth Route 2
12.1%	34	Thursday Dartmouth Route 1

Weekly Summer Collection Green Cart Pilot Project

Summer 2003

Background

- The weekly summer green cart pilot project was conducted at approximately 15,500 homes with a biweekly control area of 6,000 homes.
 - LURA Consulting and SNC Lavalin design and evaluation
 - Empirical assessment - i.e. measure of results

Parameters of the Study

- **Timelines:**
 - Eight weeks commencing Monday, July 7th and continuing to August 29th.
- **Location:**
 - Tuesday and Thursday, Halifax;
 - Thursday, Dartmouth;
 - Wednesday, Halifax (the control area).

Parameters of the Study

- **Rationale for the Pilot Areas:**
 - Typical mix of urban high density development in downtown core; mature residential area; properties with very small front and side yards.
- **Measurement:**
 - (A) Set-out Rate
 - (B) Tonnage
 - (C) Customer Satisfaction

Findings

(A) Set-Out Rate Frequency

- 53% Participation (placement of the green cart at the curb)
- 68.5% in the biweekly control area over a two-week period
- 57% higher total number of green carts placed at the curb for collection in the pilot areas.
- 21% surveyed were away one week
- 14% of residents were away for two weeks

(B) Tonnage

- Organic Material Collected:
 - ▶ 8.8 kg per household in controlled area;
 - ▶ 10.2 kg per household in pilot area;
 - ▶ * 15.9% higher in weekly collection area.

(C) Customer Satisfaction

■ *Reported Nuisances:*

<u>Type</u>	<u>Control</u>	<u>Pilot</u>
- none	47.6%	55.4%
- flies in cart	28.6%	23.6%
- strong odours	25.7%	22.1%
- fruit flies	23.8%	15.7%
- maggots	15.2%	8.9%

■ *Collection Preference:*

	<u>Control</u>	<u>Pilot</u>
-		
- Biweekly	54.3%	27.9%
- Weekly	45.7%	72.1%

■ *Willingness to pay for Increased Collection Frequency:*

<u>Willingness</u>	<u>Control</u>	<u>Pilot</u>
- Yes	42.9%	66.4%
- No	54.3%	32.1%

Summary of Findings

- Reports of fruit flies and maggots were lower in the weekly pilot areas:
 - Little difference regarding odours and flies in the green cart in the biweekly control area and the weekly pilot area.
- Residents are generally more satisfied with weekly green cart collection than biweekly collection.
- More residents in the pilot area are willing to pay an additional \$3.00 per year for increased summer green cart collection.

Cost Benefit Analysis

Financial Implications for HRM
Weekly Collection (5 day week)

■ Organic Collection - Additional Tonnes and Costs

	<u>Area 1 (Hfx)</u>	<u>Area 2 (Dart)</u>	<u>All HRM</u>
Additional Tonnes:	182 Tonnes	140 Tonnes	707 Tonnes
Existing Cost:	\$76/Tonne	\$60/Tonne	\$80/Tonne
New Cost:	\$102/Tonne	\$81/Tonne	\$110/Tonne

- Annual costs for weekly organic collection in July and August (areas 1&2) \$100,000, all of HRM \$250,000
- Assessment by staff: The marginal benefits and the cost, do not warrant the provision of weekly summer green cart collection.

Alternatives

- 1) Provide weekly summer green cart collection for all of HRM - \$250,000 annually.
 - Should Council proceed, HRM must notify the residential contractor 60 days in advance of the commencement of the service;
 - Council would need to identify a funding source through the 04/05 budget process.
- This alternative is not recommended - benefits of an enhanced service are marginal and not cost effective.

Alternatives

- 2) Provide weekly summer green cart collection in urban/suburban HRM - approx. \$180,000 annually.
 - 3) Provide weekly summer green cart collection in peninsula Halifax and downtown Dartmouth - approx. \$40,000 annually.
 - 4) Provide weekly summer green cart collection in the urban core of HRM where generally residential properties have smaller front and side yards - Areas 1 & 2 (Hfx, Dart) -approx. \$100,000 annually.
- None of the above alternative are recommended.

Synopsis

Organic Green Cart Collection

- 1) Satisfaction Rate: 80% ↗
- 2) Reports of Nuisance since 1999↘
- 3) Comprehensive C&E Campaign
 - Enhanced in 01/02 - Green Cart Tips
 - Naturally Green Newsletter
 - Green Cart Tips Brochure
 - HRM Call Center & SWR Information/ Assistance
 - Local TV Campaign
- For Summer of 04/05: TV Campaigns
 - Increase in number of weeks - 10 weeks
 - Increase in number of spots - Total 250

RECOMMENDATION

- Based upon the marginal benefits quantified during the eight-week, weekly summer collection green cart pilot project, that the current service level of biweekly green cart collection continue for future summers.

Increase in services not budgeted for in 2004-2005.